

KS3 Design and Technology overview 2020/21

Subject leader: Mrs S Reynolds

Subject teacher: Mr B Rainbird

Design and Technology technicians: Mrs J Moore, Mr S Jennings

In KS3 Design and Technology students are introduced to a range of materials, tools and equipment and core theory, encouraging technical understanding, creativity and curiosity. The aim is always to be able to work safely, confidently and competently in the Academy workshops. Throughout each material area students are taught about sustainability; life cycle assessment and where materials come from. CAD is also taught in each year group.

Autumn term

Year 8 and 9

Students explore factors and considerations which affect the design process and usability of products. Through looking at familiar, everyday products students learn about:

ergonomics and anthropometric data, branding, aesthetics, impact on lifestyle, cultural/moral/economic issues, new and emerging technologies and life cycle assessment. Students will use this knowledge to redesign an everyday product. This project will encourage curiosity about how and why products are made and how they can be improved for inclusivity and future users.

Spring term until June half term

Year 8

Mechanical toys

This project teaches students about mechanisms and movement, specifically how linkages, cams, gears and pulleys create and transfer movement in products. Students will design, make, test and evaluate a mechanical toy which will use mechanisms to create a specific movement.

Students will learn about different wood and will use tools and equipment safely within this material area including saws, drills and sanders in the Academy workshop. Students will continue to learn 2D CAD and be introduced to CAM to produce their products.

Year 9

Clock design

Students will design, make, test and evaluate a clock. This is a theme-based project, teaching students how to respond to a specific theme to develop ideas for a product. They will work with plastic and wood, using tools and equipment within these 2 material areas safely, including saws, drills and sanders. Students will also focus on presenting their idea, using 3D CAD Solid Edge.

After June half term

Year 8

E-textiles

Combining electronics and fabrics students will be designing a product within the material area of textiles which interacts with the user.

Year 9

Pewter casting

Students will design and make a pewter keyring, learning about mould making and metal casting. The mould will be produced in 2D design CAD and cut on the laser (CAM). Students will learn about metal and work safely within this area including cutting and polishing.

Students are assessed throughout the year with 2 exam papers and in D&T lessons, working in booklets.

GCSE Design and Technology

We teach the OCR Design and Technology new specification (1-9). It consists of 50% non-exam assessment (coursework) and 50% exam taken at the end of year 11. Students are expected to have a good level of maths and science as this makes up 15% of the exam.

Yr 10 – students will be encouraged to work independently and creatively to produce products from design situations and briefs. They will need to learn a good level of CAD/CAM and work respectfully and safely in the workshop.

In June of year 10 students will be given their coursework to start and this will need to be completed by the Easter of year 11.

Yr 11 students will complete the NEA, an iterative design process, and this involves producing a prototype which can be tested and evaluated. Students are expected to 'explore, create and evaluate' – a process which encourages creative thinking skills and management of processes.

Useful websites include: <http://www.bbc.co.uk/education/subjects/zvg4d2p>,

<http://www.technologystudent.com/>, <http://www.ocr.org.uk/qualifications/gcse-design-and-technology-j310-from-2017/>

Recommended book to purchase for GCSE knowledge and revision (Open Academy can purchase cheaper than the RRP – contact Mrs Reynolds for details):

<https://collins.co.uk/products/9780008227418>